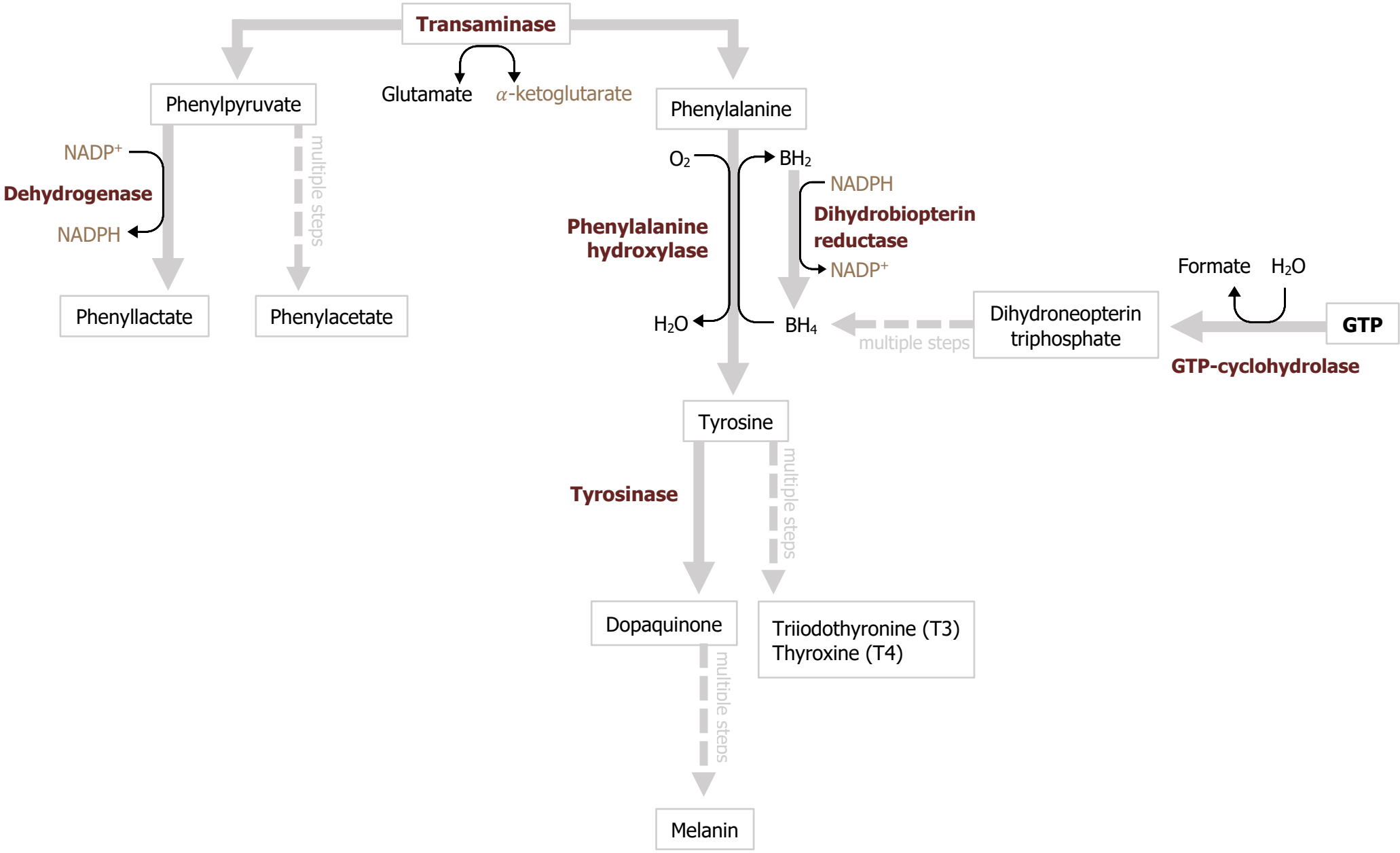
Transaminase
Glutamate
α-ketoglutarate
Phenylpyruvate
NADP+
Dehydrogenase
NADPH
multiple steps
Phenyllactate
Phenylacetate
Phenylalanine
O2
BH2
NADPH
Dihydrobiopterin reductase
NADP+
Phenylalanine hydroxylase
H2O
BH4
multiple steps
Dihydroneopterin triphosphate
Formate
H2O
GTP
GTP-cyclohydrolase
Tyrosine
Tyrosinase
multiple steps
Dopaquinone
Triiodothyronine (T3)
Thyroxine (T4)
multiple steps
Melanin